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habits in the last two months and a half. It feeds on the inner bark and on the sap-wood. When fully fed it spins its cocoon near the surface of the outer bark. Early in the morning it makes its way out of the cocoon and the very thin layer of bark that covers it, leaving the cast skin half emerged from the orifice on the trunk, and appearing in a winged state. The females in laying their eggs, select the roughest places of *any part* of the trunk — and not of the base only, as the *T. exitiosum* — where they deposit them one in a place. The larvæ are found under the bark at any time and in all sizes. — P. GERMADIUS, *Champaign, Ill.*

A SPINOUS FIN IN A MINNOW. — A genus of fishes (*Protistius* Cope) has been recently discovered in the Ecuadorian Andes, which in its general structure appears to belong to the bull-minnows (*Cyprinodontidæ*). Its head and mouth, however, resemble those of a mullet (*Mugil*) and it has a rudimental spinous dorsal fin consisting of a single small spine, which is bound to the back by membrane so as to be capable of but little erection.

## GEOLOGY.

RETURN OF PROFESSOR MARSH'S EXPEDITION. — Prof. O. C. Marsh and party returned to New Haven, November 7th, after an absence of five months in the Rocky Mountain region and on the Pacific Coast. The present expedition had the same object in view as those of previous years, viz: a study of the vertebrate fossils of the west, especially those of the Cretaceous and Tertiary formations. The first explorations this year were made in the Pliocene deposits near the Niobrara River. The party fitted out in June at Fort

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blue spot in the middle of the fore margin; fringe black. TAIL (caudal tuft) deep orange. ABDOMEN, above steel-blue; beneath, except the second ring from the thorax, steel-blue and golden-yellow with a longitudinal orange line in the middle. THORAX shining brown-yellow. LEGS hairy, yellow, spotted with orange and steel-blue; femur of the front pair, orange. Prosternum, heavy orange; mesosternum and metasternum, heavy golden-yellow. HEAD mostly occupied by large black eyes, in the front part of each of which is a white silvery spot. PALPI orange. TONGUE distinct, spiral, yellow, 3-16 of an inch.

The male differs from the female in being somewhat smaller, having the fringe brown-golden; the abdomen, above of a lighter steel-blue, inclining to a bronze, and beneath of a more intense golden-yellow; hairs of the tail of a steel-blue color half-way from the base, and the remaining of paler orange. In a word, he is of a lighter color than the female.

The larva is whitish, hairy, head brown; length 9-10 inch and diameter 1-8 of an inch.

McPherson, Nebraska, and, accompanied by an escort of two companies of U. S. Cavalry, proceeded to the Niobrara, and worked in that country for several weeks. Owing to hostile Indians, the explorations of the party here were attended with much difficulty and danger, but were on the whole quite successful. Many new animals were discovered, and ample material secured for a full investigation of those previously known from that region.

A second expedition was made in August from Fort Bridger, Wyoming, and large collections of Eocene fossil vertebrates were obtained, especially of the *Dinocerata*, *Quadrupana* and *Cheiroptera*, which had first been brought to light by the researches of the party in previous years. A third trip was made in September to the Tertiary beds of Idaho and Oregon, where some interesting discoveries were made. The party went from Oregon to San Francisco by sea, narrowly escaping shipwreck, and then returned east by rail. On the way, short visits were made to localities in Colorado and Kansas, to complete investigations begun last year. The expedition as a whole was very successful, not merely on account of the large number of new animals discovered, but also on account of the extensive collections made to complete the study of those previously found. All of the collections secured are now in the museum of Yale College.

### MICROSCOPY.

A NEW SECTION CUTTER.—Prof. T. D. Biscoe has contrived a new section cutter which is principally adapted for preparing sections of soft vegetable tissues and organs, such as leaves, buds, etc. It consists essentially of a large glass stage-plate upon which the object is fastened, and a movable frame to slide upon this, carrying a razor blade at an adjustable distance from the plate. This apparatus cuts sections of objects while they are under observation on the stage of the microscope, under powers as high as the  $\frac{2}{3}$  inch ( $\times 80$ ); and with it Prof. Biscoe has been able to cut series of fifteen consecutive sections, each one of which was perfect and the average thickness of which was  $\frac{1}{8000}$  inch. The following is his description of the contrivance.

“Fig. 41 is a plate that fits on to the stage of the microscope with a tight friction, yet so that it has movements of an inch or